

# EUROPEAN PATENT OFFICE

## Patent Abstracts of Japan

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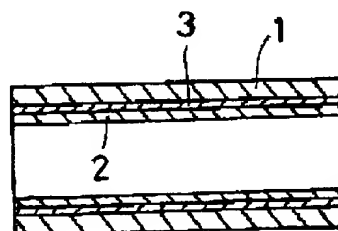
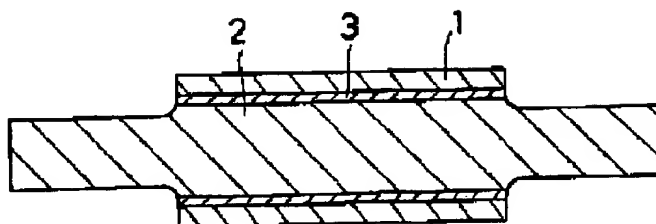
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TITLE : COMBINATION ROLL



**ABSTRACT :** **PURPOSE:** To develop the combination roll which has an outside layer of the uniform quality of a material and is highly resistant to wear by constituting the roll to be used for rolling, etc., of steel products of the outside layer made of a cast iron contg. a hard metal carbide, an intermediate layer made of a high-carbon cast steel and an inside layer made of a graphite cast iron.

**CONSTITUTION:** The roll for rolling the steel products is made of the combination structure, such as solid roll or sleeve-like roll consisting of the outside layer 1, the intermediate layer 3 and the inside layer 2. The outside layer 1 of the roll is made of the wear resistant cast iron contg., by weight% 1.0 to 3.0% C, 0.1 to 2.0% Si, 0.1 to 2.0% Mn, 3.0 to 10.0% Cr, 0.1 to 9.0% Mo, 1.5 to 10.0% W, 0.5 to 10.0% Co and 3.0 to 10.0% in total of one or two kinds of V and Nb. The intermediate layer 3 is made of the high-carbon cast steel contg. 1.0 to 2.5% C, 0.2 to 3.0% Si, 0.2 to 1.5% Mn,  $\leq 4\%$  all of Cr, Ni and Mo, further  $\leq 12\%$  in total of W, V and Nb and a small quantity of Co. The inside layer 2 is made of the flake graphite cast iron, spheroidal graphite cast iron or graphite steel.

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